

General trout structure

WHAT IS A TROUT?

Trout are members of the great family of fishes known as Salmonidae, which includes the salmon. They are typically inhabitants of the colder streams and lakes of North America, Europe, and Asia. Under suitable conditions, many kinds migrate to sea, but all spawn in fresh water.

There is nothing so very unusual about the appearance of a trout, except perhaps the adipose fin (see illustration) which grows from the back about half way between the dorsal fin and the tail, or caudal, fin. All members of the family Salmonidae have this adipose fin.

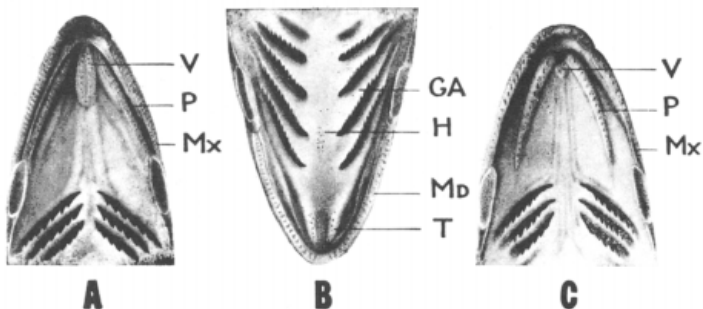
All trout have bodies shaped a good deal like the illustration above. The mouth is never located on the underside of the head as in the suckers and carp. It is always at the tip of the head and it is quite large, the maxillary bone projecting back to the eye or behind it. It is never small, as in the whitefish. Trout have the usual number of fins, but their location on the body is not quite the same as in many other fishes.

From the illustration it can be seen that the pectoral fins, one on each side just behind the head, are set low, almost down to the belly. The pair of ventral fins is located about half way between the tip of the head and the tip of the tail. In a bass these fins are much farther forward.

All trout have scales after they have grown to be a couple of inches long; even the brook trout has scales, though they are so small they are difficult to see.

If one becomes familiar with the illustrations of trout in this booklet there is little danger of confusing a trout with fish of other families. But it is sometimes very difficult to distinguish trout from salmon or from whitefish.

In most of the lakes and streams of California there are no whitefish, which are relatives of trout. They are found only on the eastern slope of the Sierra Nevada in the Truckee, Carson, and Walker river drainages. The



Jaws and teeth of trout and char. Figure A shows the upper jaw and roof of mouth of Cutthroat trout. B shows the lower jaw, tongue, and lower half of gill arches of cutthroat trout. C reveals upper jaw and roof of mouth of Dolly Varden. Key to symbols: V—Vomer with teeth; P—palatine bone with teeth; Mx—maxillary; Md—mandible; GA—gill arch; H—Hyoid teeth on base of tongue; T—teeth on tip of tongue. Illustration courtesy of British Columbia Provincial Museum from Handbook No. 5, The Fresh-water Fishes of British Columbia.

whitefish has a small mouth, the maxillary bone extending back barely to the eye.

Salmon are often confused with steelhead and in the water it is difficult to tell them apart. Only after they have been caught and compared side-by-side can the layman see how they differ. In many coastal streams fishermen catch young silver salmon and call them trout. Actually yearling silver salmon up to five inches look so much like steelhead that it is no wonder they are often confused with them.

In these small fish one should count the rays of the anal fin; the salmon has more than 12, whereas the trout has 12 or fewer, as shown in the illustration.

After these small trout and salmon have migrated to the ocean and returned to the stream as mature fish ready to spawn, they are still a little difficult to distinguish. A quick way to tell them apart is to grasp the fish around the base of the tail (caudal peduncle)—if it slips through your hand, it is a steelhead and if it can be held quite easily, it is a salmon. The tail of a salmon is more rigid and more strongly forked, while that of the steelhead is softer and more nearly square. The inside of the mouth of a steelhead is white, while the inside of the mouth of a salmon is gray or blackish.

Looking at the scientific names of the trout described in this booklet, it will be noted that all belong to the genus *Salmo* except the eastern brook trout, Dolly Varden, and lake trout, or mackinaw. These three belong to the genus *Salvelinus* and are often called char. The differences between trout and char are small and not always easy to see. The char has teeth on the head, but not on the shaft of the vomer bone, which forms the roof

of the mouth. The trout has teeth on both the head and the shaft of the vomer (see illustration). Externally, the char has yellow or red spots, but no black spots, whereas the trout boasts a variety of colored spots, including black. In California today the term char is rarely used.

THE KINDS OF TROUT IN CALIFORNIA

Seven species of trout are now present in California. In the list below, the official common names are shown at the left, while the corresponding scientific names at the right identify genus and species, in that order.

Brown trout	<i>Salmo trutta</i>
Cutthroat trout	<i>Salmo clarkii</i>
Rainbow trout	<i>Salmo gairdnerii</i>
Golden trout	<i>Salmo aguabonita</i>
Eastern brook trout	<i>Salvelinus fontinalis</i>
Dolly Varden trout	<i>Salvelinus mairna</i>
Lake trout	<i>Salvelinus namaycush</i>

Of these seven, the cutthroat, rainbow, golden, and Dolly Varden are natives, while the brown, eastern brook, and lake have been introduced into the State.

The cutthroat, rainbow, and golden are generally considered to consist of two or more subspecies, although ichthyologists who specialize in the classification of trout are not in full agreement with respect to the validity of some of them. Those presently officially recognized in California are the following.

Coast cutthroat trout	<i>Salmo clarkii clarkii</i>
Lahontan cutthroat trout	<i>Salmo clarkii henshawi</i>
Piute cutthroat trout	<i>Salmo clarkii seleniris</i>
Steelhead rainbow trout	<i>Salmo gairdnerii gairdnerii</i>
Kamloops rainbow trout	<i>Salmo gairdnerii kamloops</i>
Shasta rainbow trout	<i>Salmo gairdnerii stonei</i>
Kern River rainbow trout	<i>Salmo gairdnerii gilberti</i>
Eagle Lake rainbow trout	<i>Salmo gairdnerii aquilarum</i>
Royal silver rainbow trout	<i>Salmo gairdnerii regalis</i>
South Fork of Kern golden trout	<i>Salmo aguabonita aguabonita</i>
Little Kern golden trout	<i>Salmo aguabonita whitei</i>

In this booklet, we have included individual descriptions of most, but not all, of the subspecies. We have presented generalized descriptions of the rainbow and golden, because of their variability, especially with respect to general coloration and spotting, which vary greatly with type of a trout. We have also included individual descriptions of the steelhead, Kamloops, and Eagle Lake rainbows, because of their distinctiveness and the great interest of anglers in them. We have not included individual descriptions of the Shasta rainbow, because of questions regarding the validity of the subspecific name (the original description may have been based on sea-run specimens of the steelhead rainbow) and the purity of existing stocks; of the Kern River rainbow, because of its restricted distribution (the upper Kern River); or of the royal silver rainbow, because of its limited distribution (Lake Tahoe) and rarity (last reported in 1949).